

input. Another example would be the “thumbs up” icon used in the Facebook™ application as part of its messenger service. As the user supplies multiple levels of pressure, the size of the image or thumb may be changed and a haptic effect may be generated to accompany the change in visual size.

[0144] FIG. 36 provides a flowchart according to an embodiment. In the embodiment illustrated in the flowchart 3600 of FIG. 36, a device receives a first force signal associated with a graphical icon at 3601, the graphical icon representing an application specific area. The device then receives a second force signal which is different than the first force signal already received at 3602. The device, or a system featuring the device, generates a direct-to-launch interaction parameter using the first force signal and the second force signal at 3603 and then applies a drive signal to a haptic output device according to the direct-to-launch interaction parameter at 3604. Then, the device, or a system featuring the device, generates haptic effects based on the drive signal at 3605. For example, applying pressure levels to device 2002 in FIG. 20 at an application specific area (illustrated as an icon in FIG. 20), may result in the generation of a direct-to-launch parameter and accompanying haptic effect.

[0145] FIG. 37 provides a flowchart according to an embodiment. In the embodiment illustrated in the flowchart 3700 of FIG. 37, a device receives a first force signal associated with a housing of a haptically enabled pocket device at 3701. The device then receives a second force signal which is different than the first force signal already received at 3702. The device, or a system featuring the device, determines a number of notifications using the first force signal and the second force signal at 3703 and then applies a drive signal to a haptic output device according to the number of notifications at 3704. Then, the device, or a system featuring the device, generates haptic effects based on the drive signal at 3705. For example, applying pressure levels to device 1402 in FIG. 14 at a location on the display or to the housing itself, may result in the generation of a set of haptic effects to communicate a number of notifications awaiting the user of the device.

[0146] FIG. 38 provides a flowchart according to an embodiment. In the embodiment illustrated in the flowchart 3800 of FIG. 38, a device receives a first force signal associated with a housing of a haptically enabled device at 3801. The device then receives a second force signal which is different than the first force signal already received at 3802. The device, or a system featuring the device, determines a temporary screen activation time using the first force signal and the second force signal at 3803 and then applies a drive signal to a haptic output device according to the display screen temporary activation time at 3804. Then, the device, or a system featuring the device, generates haptic effects based on the drive signal at 3805. For example, applying pressure levels 1503 to device 1502 in FIG. 15 at a location on the display or to the housing itself, may result in the generation of a temporarily activated display screen and a generated haptic effect provided to the user to indicate that the screen has been activated.

[0147] FIG. 39 provides a flowchart according to an embodiment. In the embodiment illustrated in the flowchart 3900 of FIG. 39, a device receives a first force signal associated with a softkey button at 3901. The device then receives a second force signal which is different than the first

force signal already received at 3902. The device, or a system featuring the device, determines a confirmation level using the first force signal and the second force signal at 3903 and then applies a drive signal to a haptic output device according to the confirmation level at 3904. Then, the device, or a system featuring the device, generates haptic effects based on the drive signal at 3905. For example, applying pressure levels to device 1702 in FIG. 17 in the lower region of device 1702 (where the pointer ends) may include softkey buttons 1704 (as opposed to traditional rigid mechanical buttons) with which the user 1701 may interact and receive a confirmation level based haptic response based on the interaction.

[0148] FIG. 40 provides a flowchart according to an embodiment. In the embodiment illustrated in the flowchart 4000 of FIG. 40, a device receives a first force signal associated with an unlock security sequence at 4001. The device then receives a second force signal which is different than the first force signal already received at 4002. The device, or a system featuring the device, sets an unlock security confirmation level using the first force signal and the second force signal at 4003 and then applies a drive signal to a haptic output device according to the unlock security confirmation level at 4004. Then, the device, or a system featuring the device, generates haptic effects based on the drive signal at 4005. For example, applying pressure levels 1803 to a device 1802 in FIG. 18 in a particular sequence 1804 may result in unlocking device 1802 upon setting an unlock security confirmation and the device may generate haptic effects to confirm the unlocking.

[0149] FIG. 41 provides a flowchart according to an embodiment. In the embodiment illustrated in the flowchart 4100 of FIG. 41, a device receives a user input signal associated with a pressure-enabled area at 4101, the pressure enabled area being associated with a device. The device then determines if the user input signal is less than a force detection threshold at 4102. The device, or a system featuring the device, generates a pressure-enabled parameter using the user input signal and the force detection threshold at 4103 and then applies a drive signal to a haptic output device according to the pressure-enabled parameter at 4104. Then, the device, or a system featuring the device, generates haptic effects based on the drive signal at 4105. For example, applying pressure levels to device 2502 in FIG. 25 in a pressure-enabled area (for instance at the location of object 2503) with a pressure greater than a predetermined force detection threshold, may result in haptic effects being generated to accompany the user's interaction with the device and object 2503.

[0150] Several embodiments are specifically illustrated and/or described herein. However, it will be appreciated that modifications and variations of the disclosed embodiments are covered by the above teachings and within the purview of the appended claims without departing from the spirit and intended scope of the invention.

1. A method for processing a user input on a user interface, the method comprising:

providing an affordance layer that is responsive when the user input comprises a touch or tap;

providing a first interaction layer that is responsive when the user input comprises a first pressure comprising a first threshold; and